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Quenching factor for NEWS-G (G)*

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NEWS-G (New Experiments With Spheres-Gas) is a rare event search experiment using Spherical Proportional Counters (SPCs). Primarily designed for the direct detection of dark matter, this technology also has appealing features for Coherent Neutrino-Nucleus Scattering (CEνNS) studies using nuclear power plants as a neutrino source.
For both applications, an important property of the gas to characterize is the quenching factor, defined as the ratio of the measured energy induced by a nuclear recoil to that of an electron of the same energy. Quenching factor measurements in Ne and He based gas mixtures are being performed at TUNL (Triangle Universities Nuclear Laboratory) using a neutron beam and an array of backing detectors. We present the set-up and measurement technique, and report on the most recent results.

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